



Nutrition & Your Child

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DEFINING NORMAL: ASSESSMENT OF BODY COMPOSITION

"Is my child's weight normal?" is a question that pediatricians and health care professionals frequently hear. The answer to this question can usually be approximated by sight, by height/weight measurements, or by growth charts. However, sometimes more detail is needed to determine whether the different components of a child's weight are in balance.

Dr. Kenneth Ellis and his team at the Children's Nutrition Research Center (CNRC) are developing new growth references that will help physicians and scientists identify variations in body composition that may be outside the ordinary range yet are considered healthy. For example, some athletes weigh more than other people of the same height but are still healthy with little excess body fat. Other people who do not appear to be overweight may have very little muscle and lots of hidden fat. So it is important to look at all the body compartments to gain a complete picture of a person's health. Dr. Ellis is developing a database that describes four different body compartments: body water, mineral, protein, and fat. The CNRC is the only laboratory in the nation

that can provide comprehensive measurements of these four body compartments in populations ranging from low-birth-weight infants to adults. The instruments, capable of quantifying specific body compartments, use well established scientific principles as well as new design ideas.

Comprehensive information about body composition and the specific techniques used by CNRC

researchers to determine body composition can be found at <http://www.bcm.edu/bodycomlab/>.

In addition, registered users can access the comparison database of different body composition measures by age, gender and ethnicity.

With better knowledge of body composition, clinicians will have a better understanding of disease states and be able to prescribe appropriate interventions. ♦

PORTION SIZES IMPACT EATING

Today large food portions are common. Interestingly, the availability of large portions has increased during the same period that child obesity has sharply increased.

Analysis of portion sizes available at fast food restaurants and chain restaurants show that individual portions are often 2 to 8 times larger than USDA standards. Since today's average US family spends about 40% of their food dollar away from home, large portion sizes are becoming a way of life for many.

Dr. Jennifer Fisher, formerly at the Children's Nutrition Research Center, recently published a review article describing the impact of portion size

on young children's eating. The article is in the April 2008 issue of *Physiology and Behavior*.

A majority of the research suggest that large portions of energy-dense food increase energy intake among children as young as two years of age. In general, the impact of portion size on caloric intake is similar for both children and adults.

However, the mechanism by which this occurs is not well understood.

Some researchers have suggested that the effects of large portions can be explained by inflated perceptions of "normal" food portions. Others suggest that visual cues of a larger portion size tend to encourage



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VOLUNTEERS

Houston-area residents are invited to participate in the following nutrition research projects designed to help CNRC scientists learn more about the nutritional needs of children. Free transportation and parking are available.

NEW

PRESCHOOL ACTIVITY STUDY

Children, 3 to 5 years old, who have not started kindergarten, are invited to participate in a physical activity study. Children will do various physical activities in a "hotel like" room while their energy expenditure is monitored. Time commitment is 4 hours. Stipend. Call Lea, 713-798-7048.

BREASTFEEDING STUDIES

New mothers, 18 to 35 years old, healthy, not taking any medications (including birth control) and exclusively breastfeeding infants less than 10 weeks of age are needed for studies investigating metabolic factors that affect breast milk production. Participants should not have parents or siblings with diabetes. Stipend. Call Marilyn, 713-798-7002.

NEWBORN NUTRITION STUDY

Formula-fed babies less than 10 weeks of age are needed for a study in newborn nutrition. Formula and stipend provided. Call Marilyn, 713-798-7002.

VIDEO & WEB GAMES FOR HEALTHY EATING AND PHYSICAL ACTIVITY

Children, 10 to 12 years old, who love to play computer games are needed for a 6-month study to learn if video or web games can help children eat healthier and be more physically active. Must be fluent in English, have high-speed internet connection at home and be available for 4 visits to CNRC within 6 months. Stipend. Call Marilyn, 713-798-7002.

ARGININE AND INSULIN SENSITIVITY

Overweight but otherwise healthy 13 to 17 year old Hispanic and African-American teens are needed for a study to examine whether taking arginine (a protein building block) can help the body better metabolize sugar, protein and fat. Stipend. Call Debra, 713-798-7080.

CARBOHYDRATE AND SUGAR METABOLISM

Normal weight and overweight Hispanic teens, ages 13 to 17 years, are needed for metabolism studies. Teens should be healthy, not on medications, not have a diabetic parent or sibling, not enrolled in sports and not currently trying to diet. Study includes 12 weeks of supervised exercise with an exercise physiologist. Stipend. Call Marilyn, 713-798-7002. ♦

PROMOTING FRUIT, JUICE AND VEGETABLES

Eating fruit and vegetables and drinking 100% fruit juice promote good health. Children usually eat more fruit, juice and vegetables when they are readily available at home. However, prior research conducted by Dr. Tom Baranowski and his team at the Children's Nutrition Research Center showed no scales were available to determine home fruit, juice and vegetable pantry management practices.

Comprehensive qualitative telephone interviews with food shoppers were used to create items for the "Home Fruit, Juice, and Vegetable Management Practices Scales" (see below).

Part of the telephone interview

Participants ranked similar questions for fruit, 100% juice and vegetables.

I decide to buy more canned,
bottled or frozen ____
...when they are on sale
...when I have a coupon for them
...when I am running low
...when I run out
...to replace what we have eaten
...to stock up on them
...as a habit every time I go shopping
...to keep a variety at home

The survey documents are available on the CNRC website at www.kidsnutrition.org/faculty/baranowskit.htm. (Refer to the Phase 3 Grocery store receipt interview.) Using Item Response Modeling (IRM), an advanced psychometric procedure, scales were designed from the results of the questionnaire to better understand how and why families make purchasing decisions. Item Response Modeling sequenced the items from easiest to agree with to most difficult to agree with.

An article in the May 2008 issue of *Appetite* ([www.sciencedirect.com/science/](http://www.sciencedirect.com/science/journal/01956663)



[journal/01956663](http://www.sciencedirect.com/science/journal/01956663)) describes the use of the scales.

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USING GROCERY RECEIPTS TO ASSESS HOME FOOD SUPPLY

Dietary behaviors, such as eating fat, fruit, vegetables and sweetened beverages have been associated with promoting or preventing obesity. Dietary intake has also been related to heart disease, several cancers and diabetes. Unfortunately much of this research is based on self-reported data which could bias the results.

Dr. Karen Cullen at the Children's Nutrition Research Center recently reported the successful use of an alternate measurement that is not impacted by self-report errors. The article appeared in the October 2007 issue of the *Journal of the American Dietetic Association* (www.adajournal.org). Since a major portion of food and beverages consumed by family members come from food eaten at home, Dr. Cullen was interested in finding an efficient, relatively low cost method to assess food availability in the home that would not be affected by self-report errors.

In the study, participants were instructed to collect all grocery store receipts for 6 weeks. There were also two individual interviews, one before receipt collection and one after.

Results from the study with 98 families demonstrated that Whites spent more each month (\$527) than Hispanics (\$360) or African Americans (\$346). Among the more healthful food categories, Hispanics spent proportionally the most on vegetables and fruit. Whites spent the highest proportion on mixed dishes and alcohol, and African Americans spent the most on protein foods.

Dr. Cullen concludes that collection of this type of data might be useful in the development of targeted nutrition intervention strategies for different audiences. For example, education programs for African Americans could provide strategies to help them purchase healthy low-cost protein foods and education programs for Whites could emphasize choosing healthy convenience foods. ♦

NOTE TO PRACTITIONERS: Consider using grocery receipts to promote a discussion of shopping choices or as an evaluation tool to determine the success of nutrition education interventions.

GUIDELINES FOR HEALTHY CHILDREN

The health status of American children has generally improved in the last three decades; however, there are new and continuing areas of concern. The American Dietetic Association in the June 2008 issue of the *Journal of the American Dietetic Association* (www.adajournal.org) published a position statement for nutrition guidance for healthy children. The position statement, "Nutrition Guidance for Healthy Children Ages 2 to 11 Years," co-authored by Dr. Theresa Nicklas at the Children's Nutrition Research Center, provides guidelines for parents and caregivers as well as specific recommendations for food and nutrition professionals.

Eating patterns of children are changing with more food eaten outside the home; larger portion sizes; changes in beverage choice, meal patterns, meal frequency; and school meal participation. According to the position paper, US children are eating too much fat, and not eating enough foods rich in calcium, fiber, vitamin E, folate, iron, magnesium, and potassium. Fortunately, parents and caregivers can play an important role in the development of healthy childhood eating patterns.

Not only do parents provide the genes that influence eating behavior, they also shape the environment that influences the expression of these genes. Parents can help children adopt healthy eating behaviors by modifying:

- ♦ the availability and accessibility of different food
- ♦ portion sizes that are offered

SUGGESTED RESOURCES

Action for Healthy Kids

www.actionforhealthykids.org/

Division of Nutrition, Physical Activity and Obesity

www.cdc.gov/nccdphp/dnpa/

Healthy Youth!

www.cdc.gov/HealthyYouth/

Children's Nutrition Research Center

www.kidsnutrition.org/

Food and Nutrition Service—Nutrition Education Resources

www.fns.usda.gov/fns/nutrition.htm

Fruits & Veggies—More Matters

www.fruitsandveggiesmatter.gov/

Healthy Weight for Kids Initiative

www.adaf.org/cps/rde/xchg/adaf/hs.xsl/8465_ENU_HTML.htm

Kidnetic.com Leader's Guide: Healthy Eating & Active Living Ideas & Activities for Kids & Families

www.ific.org/kidnetic/leadersguide.cfm

Kids Health

www.kidshealth.org/

MyPyramid for Kids

www.mypyramid.gov/kids/index.html

Powerful Bones. Powerful Girls.

www.cdc.gov/powerfulbones/

We Can: Ways to Enhance Nutrition and Physical Activity

www.nhlbi.nih.gov/health/public/heart/obesity/wecan/

- ♦ frequency of eating occasions
- ♦ social setting where eating occurs

Dr. Nicklas adds, "Effective communication of nutrition guidelines to children, parents, and caregivers is both a science and an art. Nutrition messages must be based on sound science, be culturally and age appropriate, and must be fun for children."

Resources suggested for communicating science-based nutrition messages directly to children, families and caregivers are shown above. ♦

Promoting Fruit, Juice and Vegetables *(Continued from page 2)*

Using the scales with a sample of shoppers in Houston showed that the statement "purchasing them when on sale" was the most agreed upon way to determine when to buy fruit and 100% juice. For vegetables, the most agreed

upon way was "when I run out". This suggests that fruit and 100% juice were more luxury items, but vegetables were more essential and always kept in stock at home. ❖

NOTE TO PRACTITIONERS AND PARENTS: Identify the point on the scale where consumers currently are and then identify the next easiest home fruit and vegetable management practice for them to change.

Portion Sizes Impact Eating *(Continued from page 1)*

eating more food although studies with children demonstrate that children do not always "clean their plate" even with small portions. Subtle visual cues related to portion size of foods are also thought to contribute to children's food intake. For example, adolescents serve themselves and consume about 75% more juice when using a short wide glass than a taller glass of the same overall volume. A child's bite size also

seems to be influenced by portion size. As portion size increases, bite size increases. When the entrée portion is doubled, children tend to take larger bites but fewer total bites. ❖

NOTE TO PARENTS: Large portions encourage obesity promoting eating behaviors in children by increasing mealtime and daily caloric intake.

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